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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/719,985	12/19/2000	Hiroshi Uchida	Q58538	5170

7590

09/13/2002

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EXAMINER

ZUCKER, PAUL A

ART UNIT

PAPER NUMBER

1621

DATE MAILED: 09/13/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/719,985

Applicant(s)

UCHIDA ET AL.

Examiner

Paul A. Zucker

Art Unit

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

2. Claims 13 and 14 are objected to under 37 CFR 1.75(c) as being in improper form because they are multiple dependent claims. Both claims 13 and 14 are multiply dependent and are dependent, for example, on multiply dependent claim 12. See MPEP § 608.01(n).
3. Claims 15 and 16 are objected to under 37 CFR 1.75(c) as being in improper form because they are multiple dependent claims. Both claims 15 and 16 are multiply dependent and are dependent, for example, on multiply dependent claim 4. See MPEP § 608.01(n).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-3, 5, 6, 8, 9, 10 and 13-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Atkins et al (US 5,861,530 01-1999). For the purposes of this rejection claim 16 is considered to depend from claim 1. Atkins discloses (Column 5, lines 24-31; column 5, lines 16-59 and tables indicated therein) a process for the production of esters of lower aliphatic carboxylic acids via the reaction of the corresponding carboxylic acid with an olefin in the presence of a heteropolyacid catalyst and water. Atkins discloses (Column 13, lines 17-21) the reaction of ethylene with acetic acid. Atkins further discloses (Column 2, lines 26-46; column 12, line 52- column 13, line 17, for example) heteropolyacid catalysts and salts thereof corresponding to those instantly claimed. Atkins discloses (Column 3, lines 46-51) the use of ethylene, propylene or mixtures thereof as the olefin.

Atkins is silent with regard to the amount of higher olefin in ethylene when ethylene alone is used as the olefin. Atkins does however disclose (Column 3, lines 49-51) that alkanes are expected to be admixed therewith. The Examiner therefore presumes, in the absence of evidence to the contrary, that the ethylene employed by Atkins contains negligible or undetectable amounts of olefins having three carbons or more. Atkins disclosure is therefore presumed by the Examiner to meet the recited upper limit on the amounts of olefins having three carbons or more since 0 ppm meets the instant limitation. This presumption is further supported by the fact that Atkins distinguishes between the use of ethylene and mixtures of ethylene and propylene.

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Atkins further discloses (Column 1, lines 41-55) the use of the olefin equivalent diethyl ether in amounts of 1-6%. This range embraces the instantly claimed values of 5% and 2.5% (claims 5 and 6, respectively). The limitation of claim 8, since it depends from claim 7, is met since the amount of the specified olefin equivalents is presumed, on the basis of Atkins silence with regard thereto, to be 0 ppm. The limitation of claim 10 is met if, for example, the amount of olefin of three carbons or more is 0 ppm and the olefin equivalent is present to the extent of 1 mol%.

Atkins therefore anticipates instant claims 1-3, 5, 6, 8, 9, 10 and 13-18.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966),

that are applied for establishing a background for determining obviousness under 35

U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 4, 7, 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Atkins et al (US 5,861,530 01-1999) as applied to claims 1-3, 5, 6, 8, 9, 10 and 13-18 above, and further in view of Froom et al (US 6,187,949 02-2001).

Instantly claimed is a process for producing an ester by reacting a carboxylic acid and ethylene in the vapor phase in the presence of a heteropolyacid catalyst in which limitations are placed on the permitted amounts of olefins of three carbons or more and olefin equivalents (compounds capable of producing olefins under the conditions of the reaction).

The differences between the process taught by Atkins and the instantly claimed process are as follows.

- i. Atkins does not teach the presence of olefin equivalent in percentages as low as .1 %.
- ii. Atkins is silent with regard to the presence of butanes in the ethylene starting material and therefore also controlling the limits of these impurities as is instantly claimed.

Froom, however, teaches (Column 4, lines 35-47) the use of olefin equivalent diethyl ether in amounts as low as 0.1 mole% relative to the entire reaction mixture. This corresponds to a value of 1000 ppm one fifth of which is 200 ppm. This teaching in combination with the presumption of 0 ppm content of olefin of three carbons or higher therefore renders instant claims 7 and 11 obvious. Froom further teaches

(Column 8, line 42, Table 8) 0% butenes in the feed gas. This teaching in combination with that of Atkins renders instant claims 4 and 12 obvious.

Thus the instantly claimed process would have been obvious to one of ordinary skill in the art. The suggestion to combine can be found in the common field of the invention. Further suggestion for the combination of the two references can be found in the fact that Atkins is cited (Patent face, right column, first line) by Froom. The process of Froom corresponds to an optimization of the process of Atkins and the combination would therefore be expected by one of ordinary skill in the art to be successful.

Conclusion

6. Claims 1-18 are outstanding. Claims 1-18 are rejected. Claims 13-16 are objected to.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Zucker whose telephone number is 703-306-0512. The examiner can normally be reached on Monday-Friday 7:00-3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 703-308-4532. The fax phone numbers for the organization where this application or proceeding is assigned are

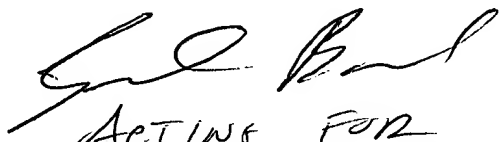
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703-308-4556 for regular communications and 703-308-4556 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1235.

Paul A. Zucker
Patent Examiner
Technology Center 1600

September 12, 2002


ACTIVE FOR
Johann Richter, Ph.D., Esq.
Supervisory Patent Examiner
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